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AUTHOR Bluestone, Barry
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ABSTRACT

The economy is well on its way toward a restructuring characterized by deindustrialization of the old manufacturing base and dualism in the evolving jobs distribution. These two phenomena cause serious social problems, including high levels of unemployment, downward occupational mobility, and a significant increase in earnings inequality. To combat deindustrialization and economic dualism, government at the federal and state levels will need to intervene more directly in the private market. Three types of policies are required: an expansionary fiscal and monetary policy, an industrial policy that includes various forms of short-run "protectionism," and a restructuring of the lower mode of the labor market. Sole reliance on the demand side of the market is not enough. To eliminate structural unemployment, reorganizing the job distribution and retraining the labor force must be pursued simultaneously. To accommodate the trend toward frequent occupational changes during a worker's lifetime, education and training must take on the dimension of lifelong learning. The government must find new sources of revenue for this expanded education and training effort. One proposed plan would make the government an "equity investor" in human capital. This investment might take the form of education and training in state accredited vocational or higher education programs, and the recipients would repay the government through a surcharge on the regular federal income tax. (YLB)

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Industrial Dislocation and Its Implications for Public Policy[*]

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Barry Bluestone
Department of Economics
Social Welfare Research Institute
Boston College

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Despite an initial surge of economic recovery and the appearance of unemployment rates below the double-digit level, the U.S. economy continues to experience a thorough and rapid industrial transformation. It is one in which sectoral and regional dislocation pose significant challenges for government policy. "Deindustrialization" of a sizable segment of the older mill-based and smokestack industries -- even when set against real growth in high-tech, service, and retail trade employment -- is creating substantial labor displacement that can only be cured by an overhaul of our economic, educational, and training institutions. The nature of this economic challenge and how government might respond to it is the central focus of these remarks.

The essense of my argument may be summed up briefly. Following consumer (and government procurement) preferences, the unfettered

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private market generates some of the required signals necessary to guide decisions as to where investment and disinvestment should take place (i.e., in which industries and in what locations). But there is no mechanism inherent in the private market that produces sufficient information about the socially optimal velocity or rate at which that investment/disinvestment should occur. Supply and demand can tell us what direction to go in when we are in a condition of disequilibrium, but it does not tell us how fast to go or prevent us from overshooting the mark. (In appreciation of this fact, standard textbook supply and demand diagrams have but two dimensions -- price and quantity; they are virtually never drawn with a third axis representing "time.")

As a result of inadequate market signals, private sector adjustments to new economic conditions are often clumsy and costly. Disinvestment is too rapid in particular industries and regions while capital stampedes chaotically into others. The auto and steel industries in communities such as Youngstown, Buffalo, and Flint are abandoned too hastily while investment pours into Houston and Miami at a pace much too rapid for successful absorption. In the process, millions of jobs are permanently destroyed with few of the displaced workers "job ready" for skilled openings in expanding sectors or regions. The unemployed are forced down the occupational ladder into less productive and rewarding jobs. Moreover, in the current industrial transformation, two factors stand out as critical: (1) the overwhelming speed at which deindustrialization has been occurring, and (2) the evolving "dualism" in the overall industrial structure. The interaction of these two has caused catastrophic unemployment and occupational "skidding."

In view of this economy-wide transformation, the government must

develop policies to modify the rate of capital mobility and invest in physical and human capital with the goal of avoiding or at least minimizing these social costs. This requires public sector intervention on both the labor demand and labor supply sides of the market. Such public intervention in the form of specific industrial policies, and education and training programs, is feasible and desirable.

The Problem - Part I: Deindustrialization

Relying on data from Dun & Bradstreet (D&B) on approximately five million establishments, Bennett Harrison and I have calculated that over 22 million jobs disappeared between 1969 and 1976 as a consequence of establishment closings and long-distance relocations.[1] The number of jobs lost amounted to 38 percent of the existing jobs in the private non-agricultural sector in 1969. Within the manufacturing sector alone, establishments with 100 employees or more had only a 70 percent probability of surviving to the year 1976 conditional on their operation in 1969. Thirty percent closed their doors permanently or moved elsewhere. Analysis of more recent D&B data by the Business Microdata Project at The Brookings Institution indicates that since 1976 the rate of employment loss due to plant closings and outmigrations has actually increased significantly. Fully one-third of all private sector jobs in 1978 had disappeared by 1982.[2]

Schmenner has demonstrated a similar phenomenon among establishments owned by 410 of the largest manufacturing corporations in the U.S.[3] Between 1970-72 and 1978, these large corporations

relocated, shut down, or divested themselves of over 21 percent of the 12,000+ establishments they owned and operated at the beginning of the period. Of this number, more than half were simply shut down (8.4%) or relocated (3.7%) rather than sold to new owners. These same corporations opened over 1,600 new plants and acquired nearly 3,400 during this period, but for the most part they were in new industries and different regions, providing little employment opportunity for those immediately affected by the closings.

In spite of all these figures, the claim of deindustrialization has come under intense scrutiny. One of the more careful studies in this regard, undertaken by Robert Z. Lawrence, concludes that U.S. deindustrialization is "a myth."[4] Lawrence notes that aggregate manufacturing employment levels remained nearly constant over the alleged period of deindustrialization, 1973-1980, and, that if anything, every other industrial country deindustrialized faster than the U.S. Manufacturing establishments employed 20.3 million in the United States in 1973 and only slightly less, 20.2 million, in 1980. Even more striking is the evidence on international trends in employment. Lawrence expresses it succinctly: "The United States increased its employment in manufacturing more rapidly than any other major industrial country including Japan."[5] (emphasis added) Indeed the U.S. was the only OECD country to have a positive growth rate in aggregate manufacturing work hours between 1973 and 1980. (See Table

Table 1

Annual Percentage Change in Manufacturing Hours by Country, 1973-1980

U.S.	+ .7	Belgium	-1.8
Canada	- .3	Denmark	-2.2
Japan	- .7	Netherlands	-3.7
France	-2.1	Sweden	-2.4
Germany	-2.6	Italy	- .1
England	-2.9		

Source: Monthly Labor Review, December 1981, p. 16.

More rapid growth in productivity in Japan and Europe, combined with the relatively slower growth in European output, is responsible for what appears to be worker deindustrialization everywhere but the United States.

Indeed, neither the data nor the aggregate trends reported by Lawrence can be disputed on face value. But there is a fundamental problem with this approach. From a social efficiency or social cost perspective, the aggregate trend in employment is inadequate to prove or disprove anything about deindustrialization if interindustry and interregional worker mobility fails to clear labor markets. What counts in an economy where mobility is imperfect and thus unemployment severe, are the trends in specific industries and regions. There is no disputing the fact that worldwide employment in manufacturing is expanding rapidly, but if it is declining sharply in the United Kingdom, for example, the growth in other countries would not in any serious way offset the economic hardship imposed on the British. Likewise, private and social costs are imposed on workers and communities within the United States to the extent that those dislocated from declining industries in particular regions cannot find

employment in equally productive jobs in other sectors. The magnitude of these costs is positively related to the rate at which employment is declining in particular sectors and regions and negatively related to the economic system's capacity to absorb dislocated workers into other sectors. For this reason, the velocity of sectoral and regional specific deindustrialization and the overall absorptive capacity of the economy are the proper phenomena to study. It is only on this basis that one can judge whether deindustrialization is a myth or not.

The actual employment performance of key sectors of the economy is disclosed in Table 2. While the flat trend (as opposed to declining trend) in employment is confirmed by the small (+0.13%) change in the number of total manufacturing jobs between 1973 and 1980, production workers did not fare as well and employment in certain key sectors fell sharply.

Overall, the number of production workers declined by almost 5 percent (-693,000), in part as a result of a substitution of supervisory and administrative office workers for production employees.[*] Moreover, total employment in the radio and TV receiver industry declined by over 27 percent and the motor vehicle, footwear, household appliance, and textile mill product sectors experienced job losses all in excess of 15 percent. Together the ten sectors, listed in Table 2, experiencing employment losses accounted for 790,000 fewer jobs in 1980 than 1973. By 1982, another 601,000 jobs had been lost

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[*] Between 1958 and 1980, administrative office and auxiliary employment in manufacturing as a proportion of total manufacturing employment rose from 3.8 to 6.5 percent. Payroll devoted to these non-production employees increased from 5.7 to 9.7 percent. Nearly half of this increase has occurred since 1972. See Annual Survey of Manufacturers, 1980, Table 1B, p. 6.

Table 2

Percent Change in Total Employment and Number of Production Workers in the U.S., by Industry 1960-1980

		Total Employment		Production Workers		Production Worker Average Wage
	Industry	1960-1973	1973-1980	1960-1973	1973-1980	1980
20000	Total Mfg.	16.7%	.13%	17.9%	-4.7%	$7.27
30000	Durable Goods	25.7	2.0	23.2	-3.8	7.75
40000	Non-Durable Goods	12.6	-2.4	9.9	-5.9	6.55
SIC 33	Primary Metals	6.3	-9.7	5.6	-13.5	9.77
SIC 35	Machinery (exc. Electrical)	41.2	19.9	35.3	14.9	8.00
SIC 361	Elec.Dist.Equip	14.8	-11.2	29.2	-16.0	6.96
SIC 362	Elec.Industrial Apparatus	32.3	-.5	40.8	-3.8	6.91
SIC 363	Household Appl.	27.3	-17.9	31.3	-18.1	6.95
SIC 365	Radio/TV Receivers	42.6	-27.2	46.5	-30.9	6.42
SIC 367	Electronic Comp. & Accessories	75.9	25.6	60.4	17.7	6.05
SIC 371	Motor Vehicles	34.9	-20.3	57.6	-25.3	9.85
SIC 372	Aircrafts & Parts	-15.8	24.6	-23.1	24.6	9.28
SIC 38	Instruments & Related Products	33.1	27.6	27.9	22.4	6.80
SIC 22	Textile Mill Prod.	9.2	-15.4	6.1	-16.2	5.07
SIC 23	Apparel & Other Products	16.6	-12.8	13.8	-10.5	4.56
SIC 28	Chemicals & Allied Products	25.3	6.3	19.7	2.1	8.30
SIC 301	Tires and Tubes	25.1	-12.6	25.1	-16.4	9.74
SIC 314	Footwear	-24.6	-22.0	-26.8	-23.2	4.42
SIC 531	Department Stores	87.1	5.8	86.6	7.6	4.95
SIC 58	Eating & Drinking Establishments	84.6	51.2	—	48.7	3.69
SIC 6000-6999	F.I.R.E.	53.9	26.6	45.5	24.3	5.79
SIC 7000-8999	Services	74.3	37.8		35.8	5.85
	Total Employment	41.7%	16.9%			
	GNP (in 1972$)	70.2%	18.0%			

Source: U.S. Department of Labor, Employment and Earnings Statistics for the United States, 1909-1980

in these ten industries alone. Not unimportant -- as we shall note again later -- is the fact that the average 1980 hourly wage in the job loss industries in Table 2 was $7.17 while the employment weighted hourly wage in the job growth industries (including those in trade and services) was 23.2 percent lower at $5.51.

The preceding analysis dealt only with national aggregates. However, it is precisely within particular regions where much of the dramatic employment activity is taking place. This can be illustrated by tracing employment trends in four key Frostbelt and four large Sunbelt states: Massachusetts, New York, Michigan, and Ohio, and North Carolina, Georgia, California, and Texas.

Table 3 presents data on the percentage change in total employment between 1973 and 1980 in major industries in these states. A sharp decline in basic manufacturing is clearly evident in Michigan, Ohio, and New York where total manufacturing job losses ranged from 10 to 17 percent. On net, over 200,000 manufacturing jobs disappeared from Michigan in this eight year period, nine-tenths of them in durables. Ohio and New York each experienced a net loss of over 150,000. In contrast, California increased its manufacturing base by over a fifth during this sluggish economic period while Texas increased its base by nearly a third and its durables sector by 43 percent. Recall that nationwide, net manufacturing employment increased by a mere 0.13 percent.

Regional shifts in the location of particular industries are notable. Michigan lost nearly 28 percent of its primary metals industry and 23 percent of its jobs in fabricated metal operations; Texas, on the other hand, enjoyed 27 and 29 percent growth in these two sectors. Similar shifts, often of even greater magnitude, are

Table 3

Percentage Change in Total Employment by Industrial Sector
In Selected States, 1973-1980

	MASS.	N.Y.	MICH.	OHIO	GA.	N.C.	CAL.	TEXAS
Total Manufacturing	6.4	-10.3	-17.3	-11.0	3.3	2.7	20.6	31.5
Durable Mfg.	20.0	-4.8	-19.0	-13.1	7.8	17.2	23.3	43.0
Non-Durable Mfg.	-9.6	-15.4	-10.0	-5.9	.9	-4.1	15.1	17.8
SIC 33 Primary Metals	—	-24.4	-27.7	-20.0	—	—	-2.2	27.4
SIC 34 Fabricated Metals	—	-10.0	-22.9	-10.4	4.6	26.3	16.4	29.1
SIC 35 Machinery (excl.Electrical)	42.8	6.3	-7.3	-2.0	36.6	36.8	43.9	77.2
SIC 36 Electrical Equip./Electronic	22.6	-1.1	-14.9	-19.2	30.9	17.1	45.0	88.2
SIC 37 Trans.Equip.	7.8	-12.7	-22.8	-18.6	3.8	101.2	5.8	23.4
SIC 38 Instruments	24.0	4.4	46.1	-3.7	—	—	60.3	43.8
SIC 22 Textile MillProd.	-16.7	-34.1	—	—	-8.0	-15.0	—	-26.6
SIC 23 Apparel	-10.0	-22.3	—	-22.3	-3.7	1.8	17.5	8.2
SIC 28 Chemicals	-10.8	-6.5	5.5	9.8	13.4	8.5	16.3	25.6
SIC 314 Footwear	-29.7	—	—	—	—	—	—	—

Source: U.S. Department of Labor, Employment and Earnings for States and Areas, 1939-1978, and Supplement 1977-80, Bulletin 1370-13/1370-15, 1979 and September 1981.

found in non-electrical machinery, electrical and electronic apparatus, and transportation equipment. Some displaced workers moved to the South to take advantage of these job openings, but there were hardly enough new jobs to fulfill the demand. The consequence has been double-digit unemployment of long duration in a substantial part of the industrial northeast. With the recession in the late 1970's and early 80's, it swept into other parts of the country -- including the South.

The Problem - Part II: Dualism

Although deindustrialization poses a serious threat to segments of the manufacturing sector, economy-wide employment levels continue to expand rapidly. Fifteen million people were added to civilian payrolls between 1973 and 1981, despite unemployment rates that rose from less than five percent to nearly nine.[5] So why worry about two to three million jobs lost in the entire manufacturing sector? The problem is that the majority of the newly created jobs are poor substitutes for the ones that are disappearing. A dramatic transformation in the structure of the entire national job distribution is responsible for an extreme mismatch between the skills and income needs of displaced workers and the skill requirements and wage levels of the new jobs. Consider the internal job structures of the growing and declining sectors.

The old mill-based industries (e.g., apparel, textiles, and shoes) and the smokestack industries (e.g., auto, steel, tires, household appliances, and petrochemicals) came to be characterized during the period 1930-1980 by relatively small high skilled/high wage

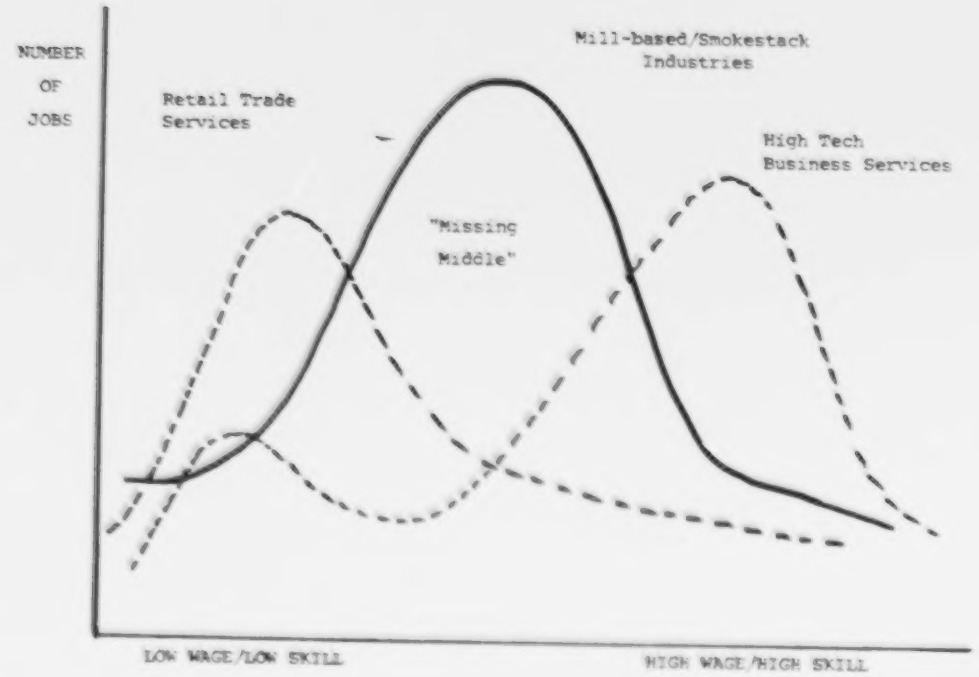
segments, similarly small low skill/low wage segments, and a large semi-skilled and skilled blue-collar and white collar "middle." In the automobile industry, for example, there is a small segment comprised of relatively highly remunerated managers and skilled designers and engineers. At the other end of the spectrum, a portion of the smaller shops that supplys General Motors, Ford, Chrysler, and American Motors with parts and components offers low wages and few employee benefits. But the vast majority of workers in the industry is employed in fabrication and assembly jobs or in manufacturing support positions that pay annual wages in the $15,000-$25,000 range. The nature of the production process combined with the demands of the trade union movement helped create such a "unimodal" distribution of jobs.

The industries that are expanding today have a very different employment distribution. Within the new high technology manufacturing industries, the business services industries, and in personal services and retail trade, the distribution of jobs tends to be "bimodal." In the computer industry, for example, there are relatively high wage jobs in computer hardward design, software development, and systems analysis. At the other end of the spectrum, there are a significant number of low wage/low skill jobs in computer assembly and in low level programming. In contrast to the auto industry, the industry lacks a large semi-skilled well-paid middle. Similarly, retail trade has developed a polarized distribution of jobs, with a well-paid bureaucracy comprised of managers, buyers, advertisers, and accountants at the top, and part-time, poorly paid sales clerks at the bottom. Again there is no middle analogous to the blue-collar assembly worker in the auto industry, or to the steelworker.

Across industries, the same type of bimodal distribution is

developing. As the lower wage computer assembly jobs are automated or shipped abroad, the computer industry tends to be dominated by the upper mode of the distribution. The lower mode tends to disappear. As discount department stores surplant other forms of retailing and fast-food chains begin to dominate the restaurant business, it is the low end of these sectors that expands the most. Hence, industries themselves seem to be moving to one or the other end of the overall job distribution. Figure 1 provides a general caricature of the old industrial structure and the new one that appears to be developing.

Figure 1



As the mill-based/smokestack industries decline, the remaining distribution of jobs becomes increasingly bimodal. The result is an economy with a "missing middle," a term coined by Bennett Harrison of M.I.T. to describe the evolving employment structure of the State of Massachusetts.[6]

Statistical data to confirm "dualism" is presently quite scanty, but as more research is completed on the evolution of the jobs distribution, the "missing middle" hypothesis appears to be gaining credibility. One piece of evidence is found in individual industry studies. In research on the retail trade sector, Bluestone et al. used the Longitudinal Employer-Employee Data file (LEED) prepared by the Social Security Administration to track the earnings distributions for year-round workers in the New England department store industry.[7] As Figure 2 indicates, men earned significantly more than women in 1957, but the overall distribution was generally unimodal. By 1975, however, the industry had become highly polarized as demonstrated in Figure 3. Women continued to dominate the low-wage sales clerk positions while the newly created administrative slots went overwhelmingly to men.

The same Social Security data source was used by Alan Matthews of the Social Welfare Research Institute at Boston College to calculate Gini ratios for a variety of New England industries.[8][*] The growing dualism in the department store industry is reflected in a

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[*] The Gini index, a measure of distribution commonly used by social scientists, is constructed so that increases in its value signify growing inequality while decreases indicate a more equal distribution. The range in Gini values is bounded by 0 and 1. When the idex is 0, there is perfect equality--each individual receives an equal amount of resources. When the index equals 1, there is "perfect inequality" where one individual receives everything and all others get nothing.

Figure 2

Earnings Distribution for Year-Round Workers in the New England Department Store Industry, by Sex

1957

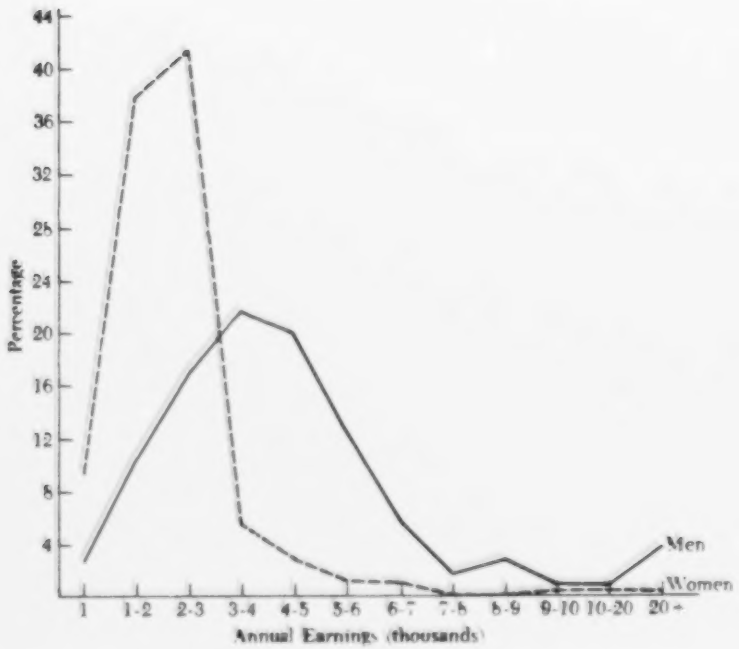
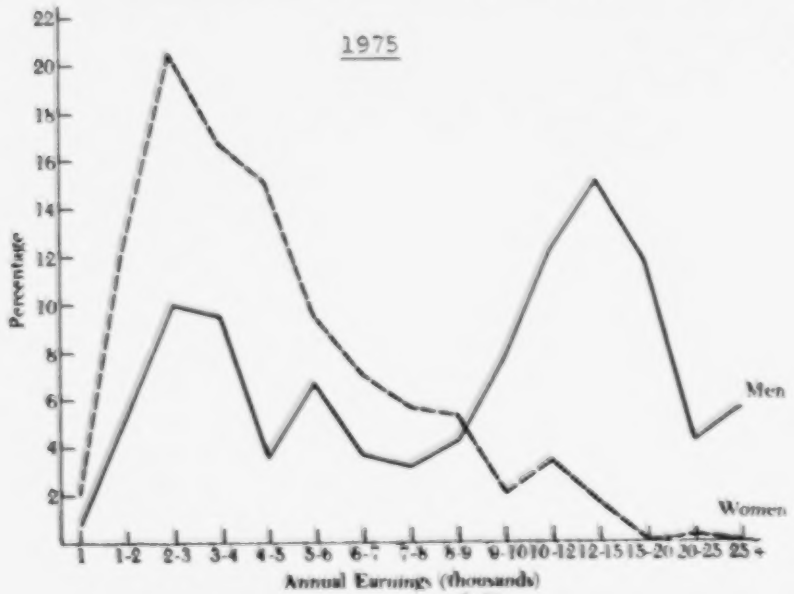


Figure 3

Earnings Distribution for Year-Round Workers in the New England Department Store Industry, by Sex

1975



Source: LEED Analysis, SWRI, Boston College

significantly larger gini ratio in 1975 compared with this standard measure of inequality for 1957-58. Table 4 indicates that other industries are experiencing the same tendencies toward bipolar earnings distributions. Substantial increases in inequality are found in office machines and computers, electronic components, supermarkets, and hotels and motels -- all rapidly growing sectors of the economy.

TABLE 4

The Growth in Earnings Inequality in the New England Economy Among Year-Round Workers: 1957–75

	Year and Earnings			
	1957–58		1975	
Industry	Median	Gini	Median	Gini
All covered employment	$3,640	332	$8,270	381
Manufacturing				
Women's outerwear	2,170	325	5,135	352
Paper mills	4,425	187	11,430	188
Commercial printing	4,135	315	9,830	279
Shoes	2,720	286	5,600	315
Metalworking machinery	4,980	270	12,290	294
Office machines and computers	4,010	184	10,840	287
Electronic components	3,740	293	7,040	328
Aircraft engines	5,000	197	13,150	217
Non-manufacturing				
Department stores	2,305	386	4,616	443
Supermarkets	2,860	367	4,680	430
Commercial banks	3,080	296	7,375	302
Hotels and motels	1,880	364	4,010	396
Hospitals	2,365	323	7,440	310

Source: Computations by Alan Matthews, Social Welfare Research Institute, Boston College, using Social Security Administration's *Longitudinal Employer Employee Data File*, containing a 1 percent sample of the Social Security records of all covered employees who ever worked inside New England between 1957 and 1975. Table includes only wages and salaries actually earned in New England for workers who were employed in all four accounting quarters of the year.

Moreover, as the first row of this table indicates, the gini ratio for <u>all</u> year-round employees in New England increased between 1957 and

1975 by nearly 15 percent, from .332 to .381. Other regions of the country may experience the same tendency toward dualism if their reindustrialization efforts mirror those of this region.

Stanback and Noyelle have discovered similar trends for the total U.S. labor force.[9] Using data from the Bureau of the Census and the Bureau of Labor Statistics, the two have investigated the effects of changing industry-occupation mix on the distribution of earnings. According to Table 5 (which is arranged on the basis of average earnings in industry-occupation cells relative to the all industry average) the shares of employment in the highest and lowest earnings classes increased between 1960 and 1975 while the share of employment in the middle of the distribution declined. From an apparent unimodal distribution, a bimodal distribution is emerging.

Projected employment growth between 1980 and 1990, forecast by the Bureau of Labor Statistics, adds another dimension to the polarization hypothesis. Of the ten occupations that are expected to produce the largest numbers of new jobs during the 1980s, seven are among the lowest paying/lowest skilled occupations in the economy (nurses' aides and orderlies, janitors and sextons, sales clerks, cashiers, fast-food workers, general office clerks, and waiters and waitresses.)[10] On the other hand, many of the up and coming "fast growing" occupations require substantial post-secondary school skills: paralegal personnel, computer analysts, physical therapists, speech and hearing clinicians, aero-astronautical engineers, economists, and brickmasons.[11] If these projections prove accurate, one would expect to find even higher inequality coefficients in the future and a more obvious bipolar distribution of job opportunities.

Table 5

1960 and 1975 Distribution of Total U.S. Labor Force among Earnings Classes and Distribution of 1960-1975 Job Increases in the Services

Earnings classes	Distribution of total U.S. labor force (percentages)[a]			1960-1975 job increases in services[b]	
	1960		1975	Numbers of jobs (,000)	Percentage
1.60 and above	10.9	31.6	12.0	34.2	1,947	9.5	35.0
1.59 to 1.20	20.7		22.2		5,224	25.5	
1.19 to .80	35.9		27.8		2,311	11.3	
.79 to .40	24.1	32.5	28.4	38.0	9,205	44.9	53.8
.39 and below	8.4		9.6		1,829	8.9	
Total	100.0		100.0		20,516	100.0	

[a]Excludes Agriculture, Mining, and Public Administration.
[b]TCU, Wholesale, Retail, FIRE, Corporate Services, Consumer Services and Non-profit.
Source: Based on U.S. Bureau of the Census, *Survey of Income and Education* (for 1975) and U.S. Bureau of Labor Statistics, *Tomorrow's Manpower Needs, National Industry-Occupational Matrix* (for 1960).

Source: Thomas M. Stanback, Jr. and Thierry J. Noyelle, Cities in Transition (Totowa, N.J.: Allanheld, Osmun, 1982, Table 3.5, p. 39.

The Double Whammy: Deindustrialization and Dualism Combined

By itself, the deindustrialization of various sectors and regions of the economy would not pose a serious adjustment problem if new comparable jobs were being generated in other industries. But when the evolving structure of employment is bipolar and deindustrialization is extremely rapid, the transition from the old industrial base to the new one is unreasonably difficult for the displaced mill-based or smokestack worker. Deindustrialization and dualism combined sorely try the absorptive capacity of the labor market. Longitudinal data on how workers fare in the labor market after displacement from basic manufacturing industries confirm the fact that many face permanent income loss.

Using the LEED file, Jacobson and his colleagues have been able to calculate the earnings losses of permanently displaced, prime-age male workers in a number of industries.[12] To measure this loss, Jacobson calculates the actual earnings of workers in a given industry who remain continuously employed in that sector. This earnings trajectory is then compared with the earnings records of workers who experience permanent layoffs from the same industry. For most cases there is an immediate drop in income subsequent to termination followed by a rise in earnings as those displaced find new employment in other firms. Some job losers are affected quite adversely with their earnings falling to zero, while others find comparable work almost immediately. The "actual earnings profile" reflects the average earnings of the full cohort of displaced workers.

Jacobson's estimates are shown in Table 6. They indicate that in the first two years following involuntary termination, the average

annual earnings loss ranges from less than 1 percent for workers formerly employed in the production of TV receivers to more than 46 percent in steel.

TABLE 6

Long-Term Earnings Losses of Permanently Displaced Prime-Age Male Workers

Industry	Average Annual Percentage Loss	
	First 2 Years	Subsequent 4 Years
Automobiles	43.4	15.8
Steel	46.6	12.6
Meat-Packing	23.9	18.1
Aerospace	23.6	14.8
Petroleum Refining	12.4	12.5
Women's Clothes	13.3	2.1
Electronic Components	8.3	4.1
Shoes	11.3	1.5
Toys	16.1	−2.7
TV Receivers	0.7	−7.2
Cotton Weaving	7.4	−11.4
Flat Glass	16.3	16.2
Men's Clothing	21.3	8.7
Rubber Footwear	32.2	−.9

Source: Louis S. Jacobson, "Earnings Losses of Workers Displaced from Manufacturing Industries," in William C. Dewald, ed., *The Impact of International Trade and Investment on Employment*, A Conference of the U.S. Department of Labor, (U.S. Government Printing Office, 1978), and Louis S. Jacobson, "Earnings Loss Due to Displacement," (Working Paper CRC-385, The Public Research Institute of the Center for Naval Analyses, April 1979)

Even after six years, workers in some industries continued to experience as much as an 18 percent shortfall. Those displaced from the better-paying, unionized industries like meat-packing, flat glass, automobile, aerospace, steel, and petroleum refining suffered the greatest reduction in income. But even in the lower-wage sector including women's apparel, shoes, toys, and rubber footwear, six or more years elapsed before displaced workers caught up with those who had the good fortune to hold on to their jobs.

Each worker's loss in earnings following displacement is a function of what new employment opportunity is available. This is

well illustrated by an analysis of displaced New England aircraft industry workers carried out with the LEED file at the Social Welfare Research Institute at Boston College. Between 1967 and 1972, 31 percent of the workers in this industry were displaced as a result of the sharp downturn in this sector and a substantial increase in subcontracting to other regions. Of the 18,300 displaced, 600 were able to locate new jobs in aircraft, but only by migrating out of New England. Sixty-five percent (11,900) located jobs in other "primary sector" industries, 11.5 percent (2,100) found jobs in "secondary sector" industries, and 20.2 percent (3,700) either found no job at all or worked outside the Social Security system.

The results of this analysis are reported in Table 7. Those who stayed in the aircraft industry by migrating to other regions had only 78 percent as much nominal earnings growth as those who were able to retain their New England jobs. Those forced into other primary sector industries (including most durable manufacturing, wholesale trade, and public utility industries) experienced only 33 percent as much earnings growth. Finally, the more than one in nine relegated to "secondary sector" industries (non-durable manufacturing, retail trade, and personal services) experienced an absolute 26 percent earnings loss. For them, annual earnings in nominal terms fell from an average of $6,054 to $4,468. After controlling for inflation, these workers earned in 1972 only 59 percent of their 1967 aircraft wages.

Further analysis of the LEED file suggests that "downward mobility" into the secondary sector is not at all uncommon. This can be seen by following the job mobility patterns of the 833,200 workers in New England whose principal activity in 1958 was to work in

Table 7

Earnings Trajectories of those Displaced from the
New England Aircraft Industry (1967-1972)
(in current dollars)
Total Displaced = 18,300

New Employment	Number	Percent	Earnings Growth (1967-1972) as % of Earnings Growth of Continuously Employed New England Aircraft Workers
In Aircraft, Outside Region	600	3.3%	78%
Other "Primary Sector" Ind.[a]	11,900	65.0%	33%
"Secondary Sector" Ind.[b]	2,100	11.5%	Absolute 26% Earnings loss
Not Covered by Social Sec.[c]	3,700	20.2%	
Total	18,300	100.0%	

Source: Special tabulations of Social Security LEED File prepared by Alan Matthews and Barry Bluestone, Social Welfare Research Institute, Boston College, September 1979.

[a] "Primary" Industries include most durable manufacturing, wholesale trade, public utilities, and some services.

[b] "Secondary" Industries include most nondurable manufacturing, retail trade, and lower-skill requirement, higher-turnover personal services.

[c] Not covered by Social Security includes those who were no longer in the labor force in 1972 or worked in jobs not covered by Social Security.

traditional mill-based industry (e.g., apparel, textiles, shoes). In the period after 1958, 674,000 left the mills. Of this number, only 18,000, or less than 3 percent, were able to locate jobs in the growing high technology sector in the region by 1975. (Another 2,000 had migrated to high-tech jobs in other states.) But more than five times as many (106,000) ended up in service and retail trade industries, almost all of which paid significantly lower wages.[13]

The general decline in earnings following dislocation is to a great extent a function of the relative earnings levels in the growing and declining industries. Although there has been substantial recent employment growth in a few higher wage industries (e.g., non-electrical machinery and aircraft & parts), many of the most rapidly growing industries are in the lower paying manufacturing and non-manufacturing sectors. Employment in the electronic components industry rose by 75.9 percent between 1960 and 1972 and then by another 25.6 percent between 1973 and 1980. But the average production worker at $6.05 per hour in 1980 earned a weekly salary only 61 percent as high as that of an average employee in the primary metals industry. In essense it was necessary to create 163 electronic components jobs to compensate for the wage bill loss of 100 steelworkers. Similarly, it takes almost exactly two department store jobs or three restaurant jobs to make up for the earnings loss of just one average manufacturing position.

Sector specific deindustrialization can therefore seriously erode the size of the real wage bill even when aggregate employment in manufacturing remains constant. Over the next decade, the national unemployment rate may fall as more jobs in the service and trade sectors are created. But the decline in unemployment may not do very

much for standards of living as many of the new jobs pay significantly less than those that are disappearing. We are entering an era in which for those in the old industrial middle, downward "skidding" rather than traditional upward mobility may become the norm. And for new entrants to the labor force, those who do not have advanced skills may be relegated permanently to the lower mode of the distribution. The middle will simply not be there for them.

Modifying the Demand Side of the Market

To combat deindustrialization and economic dualism, the government (both at the federal and state level) will need to intervene more directly in the private market. Three types of policies are required: (1) an expansionary fiscal and monetary policy (2) an industrial policy that includes various forms of short-run "protectionism", and (3) a restructuring of the lower mode of the labor market.

Expansionary macro policy is sine qua non for full employment and for saving what is left of the economy's industrial middle. My guess is that of a 10 percent unemployment rate, 4 percent is normal frictional unemployment, another 3 percent is structural, and the remaining 3 percent is caused by deficient demand. Macro policy can at least cure this last part. High interest rates choke off sales in interest sensitive industries such as auto and housing construction and retard investment in all sectors. Interest rates in real terms must be brought down to historical levels (approximately 3-4 percent) in order to provide sustained economic growth. This can best be accomplished by having the Fed return to a policy of targeting

interest rates rather than focusing on the size of an elusively defined money supply.

Fiscal policy is also important. Contrary to the belief that large (even $200 billion) deficits are bad for the economy, the old-fashioned Keynesian medicine of running deficits during recessions still works. Much of the current recovery is precisely because the Reagan Administration is fundamentally Keynesian--if not in word, certainly in deed. The combination of enormous tax cuts and bloated (defense) spending has been responsible for the consumer led spurt in growth. (Supply side nostrums about how corporate tax cuts can produce an investment boom have not panned out.) Cutting domestic spending or boosting personal taxes at this time would be unwise, but transferring federal dollars from capital-intensive military procurement to more labor-intensive civilian spending would prime the economic pump even more.

Macro policy is not sufficient, however. Given the dramatic restructuring of the economy, specific industrial policies aimed at maintaining a healthy portion of the traditional mill-based and smokestack industries are needed. In retrospect the extraordinary public assistance granted the Chrysler Corporation suggests that targeted government loans, loan guarantees, and procurement can be used successfully to re-energize "dying" industry. The key is to choose those firms that are most likely to use such targeted assistance wisely and to impose strict quid pro quos in return for such aid. Changes in management practices, restrictions on "non-productive" investments, and in some cases concessions from labor are proper demands for the government to make in return for public support.

The one serious shortcomming with the Chrysler loan guarantee (as well as the special provisions granted Lockheed and New York City) is that it was rendered on an ad hoc emergency basis. Some form of national industrial policy agency is needed to decide in a regular and rational way where assistance could best be directed. Such an agency, in connection with a federal economic development bank, should be created for this purpose. In addition, plant closing legislation should be enacted requiring firms to provide workers and communities with advance notice of plant shutdowns and to grant modest readjustment assistance. With prenotification, individual states could then establish "industrial extension services" (patterned after the U.S. Agricultural Extension Service) to provide technical assistance to company managers, workers, and community officials when notice of a imminent closing has been given. The industrial extension service would be equipped with competent staff and consultants to offer advice on production techniques, labor-management relations, capital resources, and on how to reduce "red-tape" in order to maintain the facility in question. Alternatively, in the many cases where the plant could not be saved, the extension service would assist tne workers and the community in locating other employers to fill the void.

As a normal part of industrial policy, the government must also review its trade policies. Short-run trade restriction is necessary in some cases to protect U.S. firms from export surges or to recover competitive advantage. Trade restriction should be imposed sparingly and contain sunset provisions, but it should not be automatically discarded as a potential tool in the overall industrial policy mix.

Restructuring the low end of the labor market is also important.

In its early days before the industrial union movement and Depression-era labor legislation, the current mill-based and smokestack industries were also characterized by bimodal job distributions. Well-organized industrial unions like the UAW, the United Steelworkers, the International Association of Machinists, and the various electrical workers' unions were able to use collective bargaining to dramatically improve wages and working conditions and narrow wage differentials. In turn, these efforts forced management to introduce efficiency measures that ultimately boosted productivity and for a long time made those wages and working conditions affordable.

Retail trade and services, as well as the the high tech manufacturing sector, are weakly unionized. Unionization of these industries could provide the basis for creating a new "middle" for the economy. Unionized supermarket employees are well on their way to such status already. Unions should stress the development of internal labor markets and job ladders in these sectors so that workers who chose these industries could look forward to promotion to better paying and more responsible jobs within the sector. Restructuring the job distribution within these industries would be the best method to eliminate the tendency toward extreme dualism in the economy. If wages and benefits in the retail trade and service sectors were improved, ex-autoworkers and ex-steelworkers could look forward to the transition to new jobs without the paralyzing fear of losing their entire standards of living.

Modifying the Supply Side of the Market

Sole reliance on the demand side of the market is by no means enough. Improving conditions at the low end of the dual economy will take several generations, and even then meaningful retraining and re-education of the labor force will be absolutely required. Thus to eliminate structural unemployment, reorganizing the job distribution and retraining the labor force must be pursued simultaneously.

An entirely new approach to education, training, and retraining is imperative. It took nearly four generations between 1900 and 1980 for the proportion of the labor force devoted to agriculture to decline from 38 percent to only a tenth of that, 3.8 percent. As a result, much of the reduction in farm employment was accomplished through attrition. In general, the sons and daughters of farmers--not the farmers themselves--migrated to the metropolis for jobs in the newly expanding manufacturing sector.

Today, however, and even more so in the future, industrial transformation will occur at higher velocity. The entire "product cycle" in some high technology industries takes less than ten years to complete. That is, from the time a new product is developed to the point where it is phased out or its production transferred abroad may take no more than a decade. The workers displaced from these jobs will not retire like the early 20th century farmer, but will require retraining for new industries and new products. The workers of the future will likely have two, three, or more occupations during their lifetimes.

To accomodate this trend, education and training must take on the dimension of lifelong learning. Periodically throughout their lives, workers will need to return to school for both general and specific training. Adult education programs will have to be expanded

dramatically. The type of training will have to change as well. "Process" skills -- basic language and math skills -- will be important because they provide the student with the flexibility necessary to enter various occupations. French and Fortran, calculus and logic, and advanced speaking and writing skills need to be emphasized.

As for vocational education, the public sector must play a greater role. Some years ago when I was writing about the shortage of Class A aircraft machinists in the Connecticut jet engine industry, I learned that the state was training five hairdressers for every machinist. Did this allocation of resources reflect demand conditions? Hardly. It reflected the fact that a commercial electric hairdryer cost the state $250 while a new computerized numerically controlled cutting lathe capable of machining titanium ran about $250,000. The state simply refused to allocate the resources to train a sufficient number of machinists.

This perhaps would have been acceptable if the private sector was willing to do the training. But with machinist apprenticeship programs requiring four years to complete at an annual estimated cost in excess of $12,000 and the everpresent danger of labor pirating by other firms, none but the very largest companies are willing to offer sufficient training. Consequently, ever since the large group of World War II government trained machinists retired in the early 1970s, there has been a chronic shortage of skilled aircraft workers. This can only be remedied by relatively large scale public expenditures on training. The private sector is gearing up to offer advance degrees (e.g. Wang, for example, has created a college campus that offers master's degrees in computer engineering), but the numbers involved

are just too small to believe that private enterprise can do it alone.

To develop adequate education and training in the "Information Age" requires the development of new financing mechanisms. Indeed some of these will be in the private sector. As part of the current contract agreement between Ford Motor Company and the UAW, the company has agreed to set aside funds to provide retraining for workers who face displacement. The union and the company jointly administer these training programs. This type of experiment should be studied closely to see whether it provides a useful model.

The government must also find new sources of revenue for an expanded education and training effort. Expanded revenue sharing with the states, perhaps by diverting DOD dollars to DOE, is one avenue. Another is to develop a totally new financing mechanism that makes the government an "equity investor" in human capital. Under such a plan, every individual would be eligible during their lifetime for government equity investments in themselves of up to, say, $25,000. This investment, which might take the form of an education/training voucher and cash allowance for living expenses, could be used for enrollment in any state accredited vocational or higher education program. Based on the amount of capital invested and the age of the individual receiving the investment, the recipient would pay dividends back to the government for the rest of his/her life through a surcharge on the regular federal income tax. The size of the surtax would be related to the amount of the government equity investment and the age of the recipient. Such a system of equity investments could be made fully self-financing or could involve a net subsidy to either individuals or the government. In either case, unlike normal loans, the amount repaid to the government would be based on the future

incomes of the recipients. Those who obtain high paying jobs as a (partial) result of these equity investments will end up paying more dividends back to the government than those who end up in lower paying jobs. (Such a scheme may end up subsidizing a few poets and painters, but I see absolutely nothing wrong in this.) The important point is that this equity investment program should be available to workers during their entire lives. They should be able to turn to it as the need for retraining and further education become necessary. Other ideas like this need to be pursued if we are to afford the training and education necessary for restructuring the labor force to meet the challenge of a restructured labor market.

Conclusion

The economy is already well along its way toward a restructuring that is characterized by deindustrialization of the old manufacturing base and dualism in the evolving jobs distribution. These two phenomena are the cause of serious social problems including high levels of unemployment, downward occupational mobility, and a significant increase in earnings inequality. In fact, the trends threaten the entire social structure of our society, with so-called "middle America" at greatest risk.

Reliance on the private sector alone can only exacerbate this tendency. The government must therefore play a greater role in investment decisions, take on the task of industrial planning (at least at the margin), attempt to regulate the speed of the disinvestment process in the traditional manufacturing sectors of the economy, and create new mechanisms of financing and delivering

educational and training programs to all of its citizens. Such experiments should not be shunned, but warmly encouraged.

FOOTNOTES

[1] Barry Bluestone and Bennett Harrison, The Deindustrialization of America (New York: Basic Books, 1982), p. 29.

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[3] Roger W. Schmenner, "The Location Decisions of Large, Multiplant Companies" (Cambridge, Mass. MIT-Harvard Joint Center for Urban Studies, September 1980), Table 1-2, p. 30 and Table 1-5, pp. 36-39.

[4] Robert Z. Lawrence, "Deindustrialization and U.S. International Competitiveness: Domestic and International Forces in U.S. Industrial Performance, 1970-1980, The Brookings Institution, October 19, 1982.

[5] Economic Report of the President, 1983, Table B-30, p. 198.

[6] Bennett Harrison and Edward Hill, "The Changing Structure of Jobs in Older and Younger Cities" (Cambridge, Mass. MIT-Harvard Joint Center for Urban Studies, March 1979), Working Paper No. 58, pp. 2-3. Reprinted in Benjamin Chinitz (ed.) Central City Economic Development (Cambridge, Mass. Abt Books, 1981).

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[8] These computations were prepared by Alan Matthews at the Social Welfare Research Institute, Boston College using the Social Security Administration's Longitudinal Employer-Employer Data data file, LEED.

[9] Thomas M. Stanback, Jr. and Thierry J. Noyelle, Cities in Transition(Totowa, N.J.: Allanheld, Osmun, 1982), p. 39.

[10] U.S. Bureau of Labor Statistics as reported in National Journal Special Report on "High Technology: Public Policies for the 1980s," The Government Research Corporation, 1983, p. 26.

[11] National Journal, p. 27.

[12] Louis S. Jacobson, "Earnings Losses of Workers Displaced from Manufacturing Industries," in William G. Dewald (ed.), The Impact of International Trade and Investment on Unemployment, A Conference of the U.S. Department of Labor, (U.S. Government Printing Office, 1978), and Louis S. Jacobson, "Earnings Loss Due to Displacement" (Working Paper CRC-385, The Public Research Institute of the Center for Naval Analyses, April 1979).

[13] Bluestone and Harrison, p. 97.